CLAIMS

What is claimed is:

1. A method for measuring a dimension of a pellicle, the method comprising:

projecting a light beam from a first side of the pellicle and at a first plane above a first surface of the pellicle;

projecting the light beam from the first side of the pellicle and at a second plane corresponding to a plane of the pellicle;

projecting the light beam from the first side of the pellicle and at a third plane below a second surface of the pellicle;

at a second side of the pellicle opposite to the first side, detecting a resulting intensity of the projected light beams and generating an index corresponding to each resulting intensity; and

determining the thickness of the pellicle based on the generated indexes.

2. The method of claim 1 wherein projecting the light beam from the first side comprises projecting the light beam from a laser light source.

3. The method of claim 1 wherein detecting the resulting intensity of the projected light beams comprises using a photo diode to detect the resulting intensity.

4. The method of claim 1, further comprising:

keeping the projected light beam stationary and moving, at a speed, the pellicle relative to the stationary light beam; and

determining the thickness of the pellicle by multiplying the speed of the pellicle by a time taken for the generated indexes to change as the pellicle moves.

5. The method of claim 1 wherein the pellicle comprises a pellicle membrane and a pellicle frame, and wherein projecting the light beam at the second plane corresponding to the plane of the pellicle comprises projecting the light beam incident to a side of the pellicle frame.

6. The method of claim 1 wherein the light beams are projected from a plurality of light sources positioned at different planes relative to the pellicle and the resulting light intensities are detected by a corresponding plurality of detectors.

7. The method of claim 1 wherein projecting the light beams at the first, second, and third planes comprises moving a single light beam relative to the pellicle.

8. The method of claim 1 wherein projecting the light beams comprises projecting the light beams at a substantially parallel position relative to the first and second surfaces of the pellicle.

9. The method of claim 1 wherein determining the thickness of the pellicle based on the generated indexes comprises comparing indexes generated at incremental planes and locating changes in the indexes substantially corresponding to end points of the pellicle.

10. An apparatus to measure a dimension of a photolithography element, the apparatus comprising:

a light source positionable at a first side of the photolithography element, the light source operative to project light beams at a first plane above a first surface of the photolithography element, at a second plane corresponding to a plane of the photolithography element, and at a third plane below a second surface of the photolithography element; and

a detector unit positionable at a second side of the photolithography element opposite to the first side, the detector unit operable to detect a resulting intensity of the projected light beams and to determine a thickness of the photolithography element based on the detected resulting intensity.

11. The apparatus of claim 10, further comprising a movable member to move the photolithography element relative to the light source and to the detector unit, the detector unit operable to determine the thickness of the photolithography element by multiplying a speed of the movable member with a time to change the resulting intensities.

12. The apparatus of claim 10 wherein the detector unit generates an index corresponding to the detected resulting intensity of the projected light beams.

13. The apparatus of claim 10 wherein the light source comprises a laser light source and the detector unit comprises a photodiode.

14. The apparatus of claim 10 wherein the photolithography element comprises a pellicle.

15. A photolithography system, comprising:

a controller;

a light source positionable at a first side of a photolithography element, the light source operative to project light beams at a first plane above a first surface of the photolithography element, at a second plane corresponding to a plane of the photolithography element, and at a third plane below a second surface of the photolithography element; and

a detector unit coupled to the controller and positionable at a second side of the photolithography element opposite to the first side, the detector unit being operable to detect a resulting intensity of the projected light beams, the controller operable to determine a thickness of the photolithography element based on the detected resulting intensity and operable to control movement of the photolithography element based on the determined thickness of the photolithography element.

16. The system of claim 15 wherein the photolithography element comprises a pellicle.

17. The system of claim 15 wherein the light source comprises a laser light source.

18. The system of claim 15 wherein the light source comprises a plurality of light sources positioned at incremental planes on the first side of the photolithography element and wherein the detector unit comprises a corresponding plurality of detectors positioned at the second side of the photolithography element.

19. The system of claim 15, further comprising a movable member to move the photolithography element relative to the light source and to the detector unit, the controller operable to determine the thickness of the photolithography element by multiplying a speed of the movable member with a time to change the resulting intensities.

20. The system of claim 15 wherein the controller determines the thickness of the photolithography element while the photolithography element is *in situ*.

21. A method, comprising:

projecting a light beam at a position corresponding to a dimensional limit of a photolithography element;

detecting the light beam at the position; and

monitoring for a change in the detected light beam at the position, indicative that a dimension of the photolithography element has at least reached the dimensional limit.

22. The method of claim 21 wherein the photolithography element comprises a pellicle element.

23. The method of claim 21 wherein detecting the light beam at the position comprises detecting an intensity of the light beam.

24. The method of claim 21, further comprising keeping the light beam fixed at the position.